DOCUMENT RESUME

ED 469 133 RC 022 962

AUTHOR	Gordon, Adele; Wang, Qiang
TITLE	Education in Rural Areas of China and South Africa: Comparative Perspectives on Policy and Educational Management. Comparative Perspectives: Education in China & South Africa.
PUB DATE	2000-06-20
NOTE	66p.; Produced by the UNESCO International Research and Training Centre for Rural Education (INRULED), Nanjing, China.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	EDRS Price MF01/PC03 Plus Postage.
DESCRIPTORS	Access to Education; Adult Basic Education; Comparative Education; *Compulsory Education; *Educational Change; *Educational Objectives; *Educational Policy; Elementary Secondary Education; Equal Education; Foreign Countries; Minority Groups; Politics of Education; Poverty; Rural Development; *Rural Education; Rural Urban Differences
IDENTIFIERS	*China; *South Africa

ABSTRACT

This report on the educational systems in China and South Africa compares the policies and processes of the two countries as they attempt to expand and improve rural education. Both countries experienced a major political upheaval, and even though there is a 50-year time lag between these events, political changes ushered in radical educational transformation. Today China provides basic education to almost all of its citizens, both youths and adults. However, there are lags in rural areas, particularly among women in minority groups. Changes were made in a stepwise fashion, with different contexts dictating the pace of reform. In contrast, South African educators have attempted to implement extensive changes at a rapid rate to meet constitutional challenges related to equity, redress, non-racism, and non-sexism. The new policies are in line with the most innovative changes made by developed countries, placing enormous stress on government officials, who often do not have the resources or the capacity to implement the policies. Although financing strategies are directing more funds towards the poorest South African communities, the process of implementation has tended to ignore massive inequities between different regions of the country, which arose during the apartheid era. Appendices present a case study of a Chinese initiative to educate poor rural children and descriptions of the educational systems in Zambia and Swaziland. (Contains 15 references and 16 endnotes.) (TD)

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ED 469 133

EDUCATION IN RURAL AREAS OF CHINA AND SOUTH AFRICA: COMPARATIVE PERSPECTIVES ON POLICY AND EDUCATIONAL MANAGEMENT

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ACKNOWLEDGEMENTS

Many people supported and encouraged this investigation. In particular:

Professor Chen Jingpu whose vision for quality education, carried out in a spirit of cooperation, inspired the research.

Mrs Fang for her care and help.

Miss Qiu for facilitating the visits and she and Mr Gu for their expert translations.

We hope this report is only the beginning of a fruitful collaboration between our countries to meet our goals of providing of quality education for all.

Adele Gordon
Wang Qiang

June 20, 2000

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I Introduction

1.1 Background

Education was made compulsory in China in 1986 and ten years later in SA. This paper sets out to analyze the similarities and differences in the policies and processes between the two countries as they try to achieve this goal in rural areas. In both countries poor educational infrastructure, un-and under-qualified teachers and financial constraints have made it difficult to provide children and adults with basic education. Although the discussion concentrates on China and South Africa, perspectives on all countries in the Southern African Development Community (SADC) are referred to, where this is relevant.

The notion of quality is not fixed but, as Jacques Hallak of the International Institute for Educational Planning in Paris, states, quality education should be examined in an organic and holistic context:. For Hallak, quality refers to:

relevance to local needs;
adaptability to local conditions (cultural and economic);
a special consideration for groups that are marginal;
flexibility in addressing cultural obstacles;
the integration of formal schooling into a larger and evolving environment;
equipping learners to adapt to other environments. ①

These issues require that comparative studies of educational systems have to be situated in the particular socio-political and cultural context of the countries examined. Bearing this in mind, this report focuses on providing quality education in rural areas with particular reference to policies, enrolment patterns and the curriculum.

Worldwide, enrolment of students in rural areas is far worse than in urban areas; distance, cultural and social factors and poverty all contribute to either preventing families from sending children to school or sending them to school late. The historical neglect of rural schools has left many in poor condition having few

resources. High failure rates, infrequent attendance or the phenomenon of 'dropping in and out' of school all contribute to large numbers of over-age students in the system and to increasing numbers of illiterates or neo-literates in communities. In many countries access to school for girls and women is jeopardized by their social, cultural and economic circumstances.

It is clear that providing a basic education to all citizens raises the question of what is taught. If we manage to enroll all students, we must ensure that what they learn is relevant to citizenship and helps them reach their potential in their future careers. Today's knowledge-based economy means that learning must be seen as a lifelong process, supporting people to progress in their jobs by keeping up with new developments. Therefore this paper will discuss the principles underlying the curriculum in both countries. This discussion includes the way in which both countries make sure that teachers are fully prepared to cope with the new challenges.

The changes in education began earlier in China than in SA. Therefore this paper ends with a discussion on the main features of the processes to improve rural education in China. It is hoped that some of the lessons learnt in China will be useful to countries in Africa.

1.2 Conceptual Framework

The discussion on rural education is based on a consideration of the context in which education takes place. This includes:

* Factors external to the schools (political, economic, social issues);
* Characteristics of the school system (underlying philosophy, premises, implications of financial constraints on provision; human resource development)
* Factors influencing school practices (such as the roles and responsibilities of the different tiers of government and particularly of teachers and parents in school development.)

II Context of Educational Change in Rural Areas: Experiences in China

Legislation promulgated in 1986 in China and 1996 in South Africa state that basic education would be compulsory for a period of nine years. But the contexts in which these laws were passed differ significantly in the two countries.

2.1 Historical Perspectives

Before 1949 education in China was extremely backward, especially in rural areas. The enrollment rate of primary school-age children was merely 20% and 80% of the population were illiterate. Since the founding of the People's Republic of China in 1949, the socialist political system and the high centrally-planned economy system were adopted. From 1950 to 1978 the collective production teams/villages were the basic production units in rural areas. All the land was owned and used by the production teams. Farmers did not have their own land and went to work together in the fields within a production team.

The communist government guaranteed the education of the working class and the poor because the communist party developed amongst the class of workers and peasants. As a result education developed at a very high speed backed by fast social and economic development. Most villages set up simple schools and people with primary education and above were appointed to work as teachers in the village schools. In 1958 the primary enrollment rate was up to 80% in the political 'Movement of Great Leap'. Even though education developed fast in quantity quality, the suffered.

From 1970 the primary enrollment rate was 90% and although enrollment figures increased, increases were not steady. During the Cultural Revolution many schools and universities were closed and school education was in a mess. After the Cultural Revolution school education was rehabilitated and the national college entrance examination adopted, allowing the quality of education to improve rapidly.

Today formal education in China is examination-oriented and students compete for higher education opportunities; some pupils even start competing in primary

school. The negative influence resulted from the examination is becoming more and more conspicuous. As a result innovations in education and entire social system continue in China.

2.2 Laws Regulating Educational Provision

The Constitution and educational laws concerned declare that all citizens in China have the right to education regardless of race, nationality, age and sex. Government at all levels is obliged to take steps to improve the education of ethnic minorities and education in poor rural areas.[2]

2.3 Characteristics of Rural Development and Rural Education

Today in China economically developed areas, economically moderately developed areas and poor areas coexist. Along with the development of township enterprises the rapid process of urbanization and industrialization in the southern coastal areas is striking. In some areas the economic progress approaches that of South Korea. At the same time about 50 million people are still living under the poverty line and in the poor areas education is characterized by low enrollment and high dropout rates, large gender differences, a low percentage of qualified teachers and limited resources. The various social and economic contexts, and particularly where there are limited resources, form the basis for the different features and modules of rural education.

The poverty-stricken areas have the following common characteristics:

* Poor natural conditions and environment, namely the geographical poverty. Seventy percent of the absolute poverty-stricken population are living in mountainous, desert, cold, highland and isolated areas with poor natural conditions, frail ecological systems and have insufficient natural resources.
* Location disadvantages. The poverty-stricken areas are often far away from the economic, industrial and cultural centers.
* Low economic development level. The production and business are at low level of modernization and socialization. Most of farmers' income is in products instead of currency. As a result many people in these areas are impoverished.
* Slow social progress. Poor sanitation and health conditions, low levels of social

insurance, high illiteracy rates and high population growth rates are some of the difficulties faced by these communities.

* Historical reasons. These are usually areas that have been marginalised. In the long history of human development the areas were developed much later than the relatively advanced areas.
* Dual structure of rural and urban states in China. There exist a great gap and clear division between rural and urban areas. Improper development strategies were adopted by the governments at different times. Generally resources have not been fairly allocated between the rural and urban areas or between the east and west areas. Most of the government expenditures are invested in the construction in urban areas. Lifestyles and social supports are much better in urban areas than in rural areas.

China has a strict population registration system, which classifies urban and rural people. Under the management policies those people with the specialized secondary education and above will get a status as an urban dweller and will be assigned by the government to work as a technician in urban areas or cadre at township levels in rural areas. That means even the youths with better education from the farmer's family will leave the farmland to work in a position assigned by the government. They have steady jobs-the so-called 'Gold Bowl'. The strategy results in the flow of the well-educated people out of rural areas. The rural areas are in the disadvantaged position in training and usage of human resources and natural resources.

2.4 Roles and Responsibilities of Different Tiers of Government, Parents and Communities

The government and the people's congress at central, national and all levels take part in decision-making related to educational policies. The management of 'Education for All' at the central level mainly resides in the central educational department under the unified guidance of the State Council and in collaboration with other relevant departments, mainly governmental agencies in charge of planning, finance, capital construction, civil affairs, nationalities affairs, and NGOs. At the provincial, county and township levels a leading group for promoting 'Two Basics'

is headed by leading cadres of the government and with other members drawn from the educational department and from other relevant departments. This leading group is responsible for coordination of the work of all departments concerned and for supervising them to fulfil their responsibilities. Literacy education is organized at the national level by an interdepartmental steering group for literacy work. At provincial and lower levels, similar bodies have been set up to provide guidance to literacy work.

A decision on the reform of the education structure promulgated by the China State Council stipulates that under the overall guidance and support of the state, the responsibility and authority for universalizing compulsory education and eradicating illiteracy would be delegated to local governments. In the 1990s it has been further clarified:

"In the implementation of compulsory education, the managerial responsibilities are divided among the provincial, county, and township level governments under the general guidance of the State Council... In the implementation of compulsory education in rural areas the responsibility, first of all, lies with the county government with suitable delegation of power to township authorities... In literacy education, the county level government is responsible for overall planning, and the township level governments are responsible for implementation."

The laws concerned stipulate that parents and communities should create sound educational contexts and support the education of children. Not sending compulsory school-age children to school is a punishable offence.

2.5 Access to Education

Educational priorities are to improve primary education and literacy education in rural areas. The findings of a one percent population sample survey conducted in 1995 indicated that the adult illiteracy rates of people living in county seats and rural towns are similar to the adult illiteracy rates prevailing in cities but the gender disparities are somewhat larger. The rural-urban disparities in adult illiteracy rates are very large: male and female adult illiterates in rural areas are higher than in urban areas by 10.5 and 14.36 percentage points respectively.

2.6 Present Objectives and Their Influence on Education Policies and Planning Processes

The Guidelines for Reform and Development of Education in 1993 set the general objectives of educational development during the 1990s and the main tasks remain in rural areas. The objectives announced are as follows:

Vision

* Universalizing 9-year compulsory schooling in the whole country;
* Eradicating illiteracy among the young and middle-aged adults by reducing the illiteracy rates among the 15 – 45 age group to under 5%;
* Taking steps to energetically develop one-year pre-primary education in rural areas;
* Giving attention to the education of ethnic minorities;
* Developing adult education in rural areas by running the existing literacy and technical schools for adults in rural towns and townships effectively and by integrating literacy education with vocational training in an endeavor to raise the quality of the rural work forces.

Mission

* Enrollment rates. At the primary stage, all school-age children can attend school. At the lower secondary stage, all school-age children in urban areas and in counties of economically developed areas can attend school, while in the other counties the enrollment rates should reach 95%.
* Dropout rates. For students enrolled in primary and lower secondary schools, the dropout rates in economically developed rural areas should be less than 1% and 2%. While in other rural areas, these rates should be between 2% and 3%.
* Completion rates. Among the population of the 15-year old, the proportion having completed primary education should reach approximately 98%. Among the population of the 17-year old, the completion rates of lower secondary education should reach the standards set by the provincial-level government.
* Illiteracy rates. Among the 15-year old, the illiteracy rates should be controlled under 1% or so, subject to the standard set by the provincial level governments.
* Percentage of qualified teachers. With respect to the qualifications of teachers the

following provisions have been made: all primary and lower secondary teachers should be able to fulfil their functions as required. The percentage of qualified teachers in primary schools should meet the academic qualifications set by the state.

Who is considered a literate in China?

The definition of a literate in China is quite different from that in Africa. Article 7 of the Regulations on Eradication Illiteracy in China promulgated by the State Council in 1988, revised in 1993 gives specific provisions:

Minimum literacy standards for an individual: with regard to the recognition of Chinese characters 1500 is the threshold set for a rural inhabitant; 2000 for a worker or staff member employed by an enterprise or institution or for an urban inhabitant. In addition a neo-literate should be able to read the easier popular papers and magazines and essays, to keep simple accounts, and to write simple and application-oriented essays.

Minimum literacy standards for work units: for a unit claiming to have eradicated illiteracy among its staff members, the proportion of literate people among all its members 15 years of age and over, born after October 1, 1949, excluding those lacking learning ability, should reach 95% in a rural area, and 98% in an urban area. The rate of relapse into illiteracy among the neo-literate should be less than 5%.

2.7 Implementing the "Two Basics"

What is the "Two Basics"? It refers to literacy and numeracy, namely, basically eradicating illiteracy amang youths and midaged adults, basically universalizing nine-year compulsory education.

Current goals regarding the universalization of 9-year compulsory education in China is to attain enrollment rates of primary school and lower secondary students of 99% and 85% respectively by the year 2000. This should cover areas inhabited by 85% of the nation's population. In poor areas inhabited by 10% of the nation's population, main efforts will first be directed toward making 5 – 6 year primary schooling universal, and in extremely poor areas inhabited by 5% of the nation's population, the major efforts will first be directed toward making 3 – 4 year primary

schooling universal. In the more affluent areas, it is possible to rely on local resources to realize the targets set for universalizing 9-year compulsory schooling and eradicating illiteracy among adults.

Priorities for the developed regions

In the more developed areas the targets set for the Two Basics have been attained and accepted through a process of verification. New targets have been set to implement 9-year compulsory schooling at higher standards and to gradually make education at the upper secondary level universal, namely compulsory education for 12 years.

Priorities for poorly-developed regions

Education of the disadvantaged groups mainly refers to education conducted in poverty-stricken, including areas with unfavorable natural environment, sparsely populated mountainous areas and counties and in areas where ethnic minorities live in compact communities, as well as girls education, women's literacy education, and the education of children of migrants. The last problem has emerged with the increase of rural-urban migration. The education of these disadvantaged groups is considered a priority in the implementation of 9-year compulsory schooling and eradication illiteracy.

2.8 Strategies in Finance

Efforts have been made successfully to increase financial inputs to relevant education projects. The main approaches are: increasing financial budgetary appropriateness; instituting earmarked funds for universalizing compulsory schooling in poor areas; giving subsides to education in minority areas; mobilizing governmental agencies and educational institutions in the developed areas to support the counterparts in the disadvantaged areas through partnerships, and encouraging inter-governmental organizations and other external donors to increase their grants-in-aid directed to the poor areas.

The government's financial input for compulsory education has kept inadequate for a long time. In 1991 the budget allocation in total expenditure on compulsory education was 58.5% and declined to 54.37% in 1996. In rural areas the allocation

was even lower at 52.63%. Since about one half of educational expenditure on rural primary and secondary schools depends on non-budgetary resources, such as surcharges levied on certain categories of taxes, funds raised from the rural populace, donations and fees collected from school pupils. This practice has brought about the following consequences: firstly, increasing to a certain extent the burden of rural people; secondly, inadequate and unpredictable financing of basic education; thirdly, giving rise to such malpractice as unauthorized collection of fees and exorbitant charging of fees.

With regard to the financing of literacy work, the regulations on Eradicating Illiteracy promulgated by the State Council lists the following five avenues: (1) funds raised by the governments of townships and towns, by urban neighborhoods, and by councils of villagers; (2) literacy work conducted in enterprises and institutions may be financed by budgetary allocations earmarked for the education of staff and workers; (3) part of the educational surcharges collected on certain taxes in rural areas; (4) the expenses on training teachers and full-time literacy workers, on compiling teaching materials, on research activities, on experiences exchange, and on commendation and rewards may be defrayed by funds of the educational budget; (5) donations made by various NGOs and individuals.

2.9 Strategies in Instruction

In rural areas morning classes, evening classes, half-day classes, and seasonal classes may all be resorted to in literacy work in an effort to adapt teaching and learning to rural seasonal conditions, in sparsely populated remote areas where the inhabitants are scattered and transport is difficult. The following measures may be used to facilitate the schooling of school-aged children: setting upboarding schools or semi-boarding schools, simplified primary schools focusing on the three Rs, increasing out-reach teaching sites, and adopting multiple-grade classes in teaching. For pupils from families with special difficulties, they may be allowed to go to school later and leave school earlier, and the older child is allowed to bring with her or him a younger sibling. To meet the needs of the minority areas and of religious conventions the single-nationality schools and girls' schools may be developed there, and in regular co-educational schools special classes for girls may be organized. With respect of subjects taught in simplified schools, either only the following four

subjects are provided: language, arithmetic, common knowledge, and moral study; or only language and arithmetic are taught. With respect to the modes of educational delivery, besides school attendance together with one's peers, some learning needs may be met by listening to or viewing radio and television broadcasts, or videotapes.

2.10 State Initiatives to Reduce Illiteracy

Education and technology are the basis for reducing illiteracy in rural areas and stimulating economic productivity. Provincial program offers compensatory education to illiterates and neo-literates.

The state has taken a series of measures to guarantee the conditions for literacy work and to reach goals for literacy education of youths and adults aged 17-50. The measures are: Implementing bodies-the main sites for conducting literacy education include the literacy classes affiliated to rural primary schools, as well as the evening schools of regular primary schools and literacy classes run by township cultural centers. The literacy teachers are mainly part-time ones, with a small numbers of full-time teachers mainly employed in the primary schools for peasants (numbering 45,000 in 1998). The part-time teachers consist mainly of the full-time teachers of rural primary schools and other staff members and higher-grade pupils.

2.11 Teachers

Pupil-teacher ratios in schools located in rural towns and county seats are higher than that in urban schools and pupil-teacher ratios in village schools are higher than that in town or county-seat schools. The increase of teachers and the increase of pupil-teacher ratios tend to relieve significantly the pressure on the supply of teachers engendered by the expansion of educational provision. Supply of teachers can basically meet the needs of education development. In rural areas in China the full-time teachers are composed of the government-paid teachers and the community-paid teachers. The salaries of the community-paid teachers, who are mostly senior secondary graduates without any formal training in teachers schools, are borne by the community and very low. This has been the main cause of the disparities in terms of qualification rates of teachers and education quality between urban and rural areas in China.

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2.12 Community State Partnerships in Education

In October 1989 the Chinese Youth League declared the founding of the Foundation for Assistance to the Out-of-school Children who are unable to go to school for all kinds of reasons. The goal is to have the disadvantaged children in need in the disadvantaged areas to return to school. It is called the Hope Project and its aim is to protect children's right to education. The project has developed a range of possibilities for the public to donate to the project. Funds can be donated to different levels (county, provincial, national or even the school or student); donors decide on where they would like to contribute (equipment, to the fund for administration, to building a school or to an individual.)

Till the end of 1997 the Hope Project agencies throughout China received donations totalling 1.3 million Chinese Yuan from all over the world. About 1.84 million children in need have received assistance from Hope Project and 5256 Hope Project schools set up. According to the survey the recognition rate of Hope Project is 94.2%, highest of all the social welfare programs. The donors include the little children and the old, farmers in high mountains and overseas friends.

By personalizing the relationship between donor and student a bond is forged between the donor and student which may motivate the student to work harder and the donor to continue to give funds. It is also possible that this reduces the chances of corruption in an organization as the funds are given directly to the student or her/his family who acknowledges the donation to the development fund and to the donor. High success rate with directing funds from individuals and the private sector to support marginalised children to remain at school.

The fact that a significant number of students have been helped and schools built under the auspices of the scheme is proof of the success of this strategy.

2.13 Improvements in Access

By 1998 the net enrollment rate of primary school-age children reached 98.9%, and drop-out rate dwindled to 0.9%, indicating that school-age children's access to primary school has significantly improved, and disparities between various social groups in access to school have become insignificant. There are 2242 counties which have met the standards set by the state for basically universalizing 9-year compulsory schooling. There are 9 provinces and municipalities in which 9-year

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compulsory education has basically been made universal.

2.14 Education and Innovational Strategies in China

Facilitate the development of agriculture by the approaches of application of science and technology.

The experiences in rural development in China show that the higher illiteracy rate a district has, the poorer the people are and the fewer scientific and technological findings could be applied in working. From 1985 - 1995 only 30 - 40% of research findings in agriculture were applied.

The development of rural areas has made a great advances since China has opened up trade with other countries and farmers' are responsible for their own land. At this stage the main barriers in rural development are the farmer's shortage of knowledge and technology. In other words insufficient education is the main constraint. Along with the improvement of market economy the rural education reform aims at creating a generation of well-educated farmers with practical techniques and business-management knowledge. To do this the process of integrating rural education, the rural economy, school and communities, instruction and practice will be strengthened.

Universities and schools serve as the resource centers for rural education and rural development.

For example in the Taihang Mountain Areas many people suffer from the poverty. In a village called Jiuyuan the primary school teachers teach students the knowledge in planting trees and vegetables, animal raising. The original barren slope land becomes the main source of farmer's income.

Compulsory Education Project in Disadvantaged Areas

This was launched in 1995 in order to facilitate the universalization of nine-year compulsory education in the disadvantaged areas. In addition to the regular allocation of education expenditure, the central government increases the earmarked funds of 39 billion RMB yuan and the local government input more than 80 billion for the unversalization of nine years of compulsory education in the poverty-stricken areas in west China. The president of China, premier of the State Council all pay

much attention to the work.

Twinning arrangement

Under the supervision of the China Central Government, the ministries of the central government and the big enterprises offer financial and technical assistance to the poorest provinces or counties. At the same time each of the relatively developed areas in east China will have a sister province in the underdeveloped west areas. Exchange and assistance programs are being undertaken such as teacher training, denoting teaching facilities, short-term working of the east specialists and experts in west underdeveloped areas.

The Chinese policy-makers have recognized the dynamic interplay between urban and rural areas. For education planners, this indicates that the outcomes of schooling in urban and rural should be similar because of the rapid rate of industrialization, urbanization and interplay between the rural and urban economies.

Enrolment and achievement rates in urban and rural areas

The survival rates to grade 5 in urban and rural primary schools in 1998 are as follows: national average 90.5, urban 110, county seats and rural towns 112.3, countryside 82.3. In rural areas the comparison indicates that the percentage of pupils with reading ability meeting acceptable standards was rather low. The performance in life skills was less satisfactory than in language and mathematics. In the same context gender disparity in performance was insignificant and regional disparities were very large. Performance differences between minority pupils and the mainstream Han pupils are significant.

Unitary system qualification examinations for all the secondary graduates.

From the early 1990s, China adopted a unitary system qualification examinations for all the rural and urban senior secondary students throughout China to guarantee the quality of education in rural areas. A test will be organized when a course is completed from senior grade one to grade three in each school. To graduate, students will have to pass all the tests of the courses offered at the senior secondary stage. If a student fails two or three courses, she or he will be unable to get the diploma and will not be able to take part in the entrance examination for

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higher education.

This discriminates against rural students whose opportunities to learn are less than those in urban areas. Rural studentc may not spend as much time at school, teachers' may not be qualified and school have fewer facilities, libraries and other resources than urban schools.

A result of the fact that families are responsible for their land, making the family an independent production unit with its own land, is that many rural students, especially the girl students, have to help their parents with farming work. A consequence of this is that many rural children leave school. In contrast, urban students enjoy favourable educational resources and most urban students spend a lot of out-of-school time studying. Many urban parents send their children to evening guidance classes or invite excellent teachers to coach the children at their homes. These practices have led to high levels of competition among the urban students, even for children in primary schools and pre-schools. These practices distort the objectives of school education.

In response to the issue education innovations are being undertaken in China. From the social and economic perspectives the overall reform and open-to-outside policy will lead to great development and urbanization of rural areas, which will offer more employment opportunities for rural people. The policy will result in the free flow of work forces between rural and urban areas.

The on-going expansion of enrollments in secondary and higher education will offer more education opportunities for rural children to meet the needs of rural areas. It is expected that the increase of vocational colleges and universities will give college graduates more practical skills and more skilled graduates will bring the science, technology and information to rural areas in the process of on-going development of western rural areas in China.

In China more than 90% of rural students will stay in rural areas working on the farms. Today the most academically excellent students from rural areas will go to study in the higher institutions and work in urban areas. In the examination-oriented education system the rural school graduates have received no occupation-oriented or locally relevant training. Together with other innovations the transition from the examination-oriented education to competence-based education is on-going. Along with the expansion of enrollment and the establishment of vocational colleges

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and universities, rural students may have more choices and their attitudes and values towards education will be changed. The innovation in employment and rapid rural urbanization will offer them entrepreneurial opportunities, so more students will choose to study for development of rural areas. The above-said innovations make it possible to relieve the heavy burden of students, especially the primary and junior secondary students. This will allow a transition from the examination-oriented education to competence-based education. Student-centered education draws much attention from the education administrators, teachers and communities. The education in China pays much attention to not only the fine tradition of the Chinese culture but also the up-to-date knowledge. For instance, information technology is being offered to all schools in urban and rural areas.

In order to offer more educational opportunities to both rural and urban students the Chinese government and People's Congress have adopted a series of laws and regulations to encourage the development of community-run or private educational institutions as a supplementation to the government education institutions.

Ⅲ South Africa

3.1 Historical perspectives

South Africa's Constitution and the South African Schools Act passed in 1996 have heralded the beginning of a new era for schools. All South Africans now have a right to basic education, founded on principles of equity, redress, non-racism and non-sexism. Nevertheless, it will take many years for this to be realised because of the poor teaching and learning conditions at many historically disadvantaged schools-particularly those in rural areas: on farms and in the former homelands.

Education in rural areas has been shaped by the political and economic goals of apartheid and colonialism. Prior to the passing of the South African Schools Act, rural areas were serviced by schools in small towns, farm schools on farms and community schools in the former homelands. Although schools on farms and on tribal trust land had many features in common (such as isolation, infra-structural constraints and high levels of poverty), the politics framing the policies around these types of school differed substantially from each another. In the bantustans the education departments administered resources for school building and equipping the various schools. Provision depended on the political, demographic and economic circumstances prevailing in the particular bantustan. In addition chiefs, as local administrators, had a marked affect on the schools in their particular districts. In farm schools, the most significant reason for differences in provision related to who owned the land-commercial farmer, church, mine, hospital and, in a few cases, private trusts. In schools on commercial farming land the attitude of the farm owner or manager towards the education of children on the farm determined whether or not there would be a school in the first instance and the educational status of the school in the second. But the paucity of the state budget directed towards education meant that at the majority of farm and community schools services were poorly provided and the learning and teaching environment deficient.

The rationale underpinning funding policies for education in rural areas was based on the political ideology of the times. In particular:

* The homeland governments lacked any real power in the decision-making processes around budgeting;
* Decisions about spending or addressing backlogs were made in isolation from the needs of communities;
* There was little incentive for the homeland governments to be accountable for spending decisions;
* The financial requirements of the farm schools were largely subject to the motivation of the farmers themselves and neglected community needs and the demography of the area.

These policies have led to a lower proportion of the budget being allocated to rural education; as a result per capita expenditure tended to be lower than other public schools, teacher-pupil ratios higher than in other public schools and poorly built and maintained school buildings.

This neglect is clearly inferred from Census 96 data relating to the proportion of learners in full-time education and literacy levels in rural areas.

3.2 Economic Context

Since being elected, the ANC led government has had to restructure the economy by balancing the need to reduce poverty whilst stimulating economic growth. Financial policies aim at improving the competitiveness of South Africa's economy globally. For this to happen, workers have to have the requisite skills, knowledge and values to support new economic ventures.

3.3 Roles and Responsibilities of Different Tiers of Government

The Constitution of South Africa (Constitution of the Republic of SA, Act 108 of 1996.)

Outlines the responsibilities of the national, provincial and local tiers of government.

In the education ministry the national department has the responsibility of setting the norms and standards for education that have to be implemented by the 9 provincial departments. But the process has been remarkably difficult as many of the provinces, and particually those with large rural populations, have not had the

capacity or resources to implement the standards set by the national ministry. They have also been constrained because they had to join together the departments that had functioned separately under apartheid (that were based on ethnicity and tribal affiliation).

The mandate for local government is to provide democratic and accountable government for local communities and ensure the provision of services to communities in a sustainable manner. It aims to promote social and economic development allowing all citizens to live in a safe and healthy environment. A priority is to encourage the involvement of communities and community organisations in the matter of local government.

3.4 Managing and Ggoverning Schools

The 1996 South African Schools Act regulated that all schools would be governed by a School Governing Body (SGB). The parents have the largest number of members. Other members are teachers, the principal and in the case of secondary schools, students. Community members who do not have children at the schools can be invited onto the committee but they do not have voting rights.

Legislation passed in 1996 stated that the aims of SGBs are to extend social democracy in society, to uphold the constitutional rights of parents, educators and learners, and take responsibility for managing school development. The radical nature of the changes to school management and governance indicates that schools will need ongoing support to strategically decide on school development programmes, fund raise and manage programmes.

Therefore since 1996 parents and teachers have a crucial role to play in school development. So far all SGB should have had training in:

* The rights and responsibilities of SGB;
* Developing the schools' mission and vision;
* Fundraising;
* Managing the schools finance.

During apartheid times, tribal leaders were given the authority to manage various services, including education, and reports have indicated how certain traditional leaders used (and abused) their powers in creating schools and in

improvement programmes. They no longer have a role to play in governing schools.

3.5 Rural Development Strategies

The ANC government has committed itself to improving the quality of life in South Africa's rural areas. South Africa's rural communities' face many problems caused by apartheid;

Proposed interventions treat agricultural productivity as a priority in an attempt to stimulate black commercial farming in SA.

Limited finance for development and inexperience of the local councilors who are charged with the responsibility for managing these projects has led one commentator from a rural NGO to conclude that in SA rural people are falling backwards at a faster rate than government development projects are improving conditions.[4]

The government's schemes to stimulate black commercial farming interests may mean that women will be marginalized in this process unless incentive schemes for women are introduced and finance schemes put in place that target women.

3.6 Community Needs and Demands

Two recent initiatives in SA provided rural communities with opportunities to speak out their demands-the Poverty Hearings and the Rural Development Initiative (RDI). The latter was coordinated by a group of rural NGOs that organized workhops with rural communities and organisations throughout South Africa.

The findings of both these initiatives reinforce the devastation caused by apartheid on peoples' lives. People spoke about the dispossession of their land and the effects of the under-financing of the provision of facilities and services. The social engineering arising from job reservation disrupted families and broke down community networks, leaving the majority of the rural communities in abject poverty. Workshop proceedings reflect the demands made by the rural communities on issues that they feel will improve their quality of life.

Education was central to community demands. Parents complained of the poor quality of education in rural areas saying that educational standards were higher in the towns. Many children left school because they could not afford to get to school or buy uniforms or books.

The education and education-related resolutions called for government to:

* Provide training on rights (women, sexual, workers, children, legislation affecting rural peop'e etc);
* Strengthen the capacity of youths in leadership and life skills;
* Recognize and explore indigenous knowledge/technology and simple farming methods and cultivation ;
* Provide appropriate and adequate farmers support services;
* Provide special education programmes and curricula to cater for the unemployed, seasonal workers, and school dropouts. ⑮

People also pointed to the lack of a dedicated rural development unit in national and provincial government to take responsibility for developing and managing integrated rural development programmes. Other African countries, including Lesotho, Zimbabwe and Zambia have government departments dedicated to rural development.

The arguments for or against creating a special unit to take responsibility for rural development is similar to the one made for specialized gender units. If one creates a unit, it is possible that all other departments ignore the needs of women (or rural communities) as they say that the specialized unit takes charge of these matters. On the other hand, if there is no such unit, the issues relating to women or rural communities get submerged in other concerns, especially because other groups are more powerful.

3.7 Present objectives of the education ministry

South Africa's Constitution (1995) and the South African Schools Act passed in 1996 have heralded the beginning of a new era for schools. South Africans of all ages now have a right to basic education, founded on principles of equity, redress, non-racism and non-sexism.

Some features of the laws and regulations relevant to the formal and non-formal education system (excluding post-secondary education) passed since 1994 *are as follows*:

* The restructuring of the educational system from one where 19 departments of education were responsible for education (primarily subdivided on racial and ethnic grounds) to a unitary system for all South Africans. This comprises a national department, responsible for establishing norms and standards, and nine provincial departments that manage the implementation of policy, together with district offices.

* Provision is made for a nine-year period of general compulsory education (grades 1 – 9) a grade 0-reception year that is not yet compulsory, and a further education and training phase. It is envisaged that the further education phase will provide a diversification of learning opportunities covering academic and vocationally-oriented educational opportunities. On successfully completing the nine years or twelve years of study, students will receive a General Education and a Further Education certificate respectively. Post-secondary education options will be available to those students who have a FET certificate.

* The establishment of a qualifications authority responsible for establishing a National Qualifications Framework (NQF) that accounts for formal and non-formal learning areas across all levels of learning and the various structures responsible for overseeing the accreditation and quality of education and training programmes provided by all private and public institutions. It is anticipated that this qualification framework will bring about coherence within the education and training sector. Provision is made for the recognition of prior learning, that is for skills learnt on the job or informally that were never accredited.

* The reorganisation of schools so that all former divisions between the schools for the different ethnic groups are replaced by a unitary system that provides for public schools (99%) and private schools (1%). However these regulations do not differentiate between schools in rural and urban areas. This has led to a situation where the historical and political context of schools in rural areas does not influence the formulation of policies relating to these schools.

The ANC was elected to a second term of office in 1999. A new education minister

was appointed and in July, 1999 stated his priority areas for intervention. These are organised into five core programmes areas in an implementation plan to take effect from 2000 – 2004 and cover:

* HIV/AIDS;
* School effectiveness and teacher professionalism;
* Literacy;
* Further (senior secondary school) and higher education;
* Organisational effectiveness of the National and Provincial departments.

3.8 Access to education: Basic education (Grades 1 – 9)

In 1997 in primary school (grades 1 – 7) 89% of children of the appropriate age group are at school (the net enrolment rate) but this figure dropped to 55% at secondary level. The system is characterized by a high level of over-agedness. Twelve percent of primary learners are 14 years old or more and 25% of secondary learners are 19 years or more.

In 1995 the out-of-school population of children in the compulsory phase of education was 344 277, that is less than one percent of the population of children of that age. This broad coverage of youth is the result of a quick growth in enrolment after the mid-1980s; the total growth of enrolment has been 4% per year. [15]

The fact that there are so many children who are older than they should be is due to the high failure rate. Only 21% of those who start school complete year 12, with only 5% passing the 12th grade and obtain an exemption to go to University. Some 30% in any class are 'repeaters'. The average time to complete 12 years of schooling is 18 years old. This means that there is a 50% wastage in the system caused by failure! This problem is at its worst in provinces with high proportions of rural learners. [16]

3.9 Enrolment Trends by Gender

Unlike most other developing countries, SA and other countries in the SADC region, enrolment is characterized by more girl students than boy students. The following table shows that more boys enter school but that as we approach junior middle school levels (Grade 5) the numbers equalize and by grade 12, there are

substantially more girls than boys.

Table: 1 Students (%) by grade and gender, 1997 (Bot & Schindler, 1999).

	Gr 1	2	3	4	5	6	7	8	9	10	11	12	Total
M	53	52	52	51	50	49	49	48	47	46	45	44	49
F	47	48	48	49	50	51	51	52	53	54	55	56	51

One reason for this enrolment pattern stems from the migrant labour system, where boys left their villages for the mines. Girls at home were able to continue at school, but as we show below, struggle to complete their schooling as indicated by their poor performance in the final school-leaving examination. As in all other countries, access to school in SA is influenced by their cultural, social and economic circumstances.

3.10 Youth (15 – 30 year olds)

The education profile of youth shows the high proportion who left school early.

Table 2: The education profile of youths (Percent) (From Harrison & Chisholm, 1999).

	No education	Primary school	Secondary school	School leaving examination certificate
Females	11	27	42	12
Males	12	31	52	12

3.11 Resources

Rural schools (both farm and community) have less equipment, fewer teaching resources and fewer specialised rooms such as libraries and science laboratories than urban schools. More schools in rural areas are without water, electricity and telephones than schools in urban areas.

Of all the schools in SA, 11% need structural repair and 1% are beyond repair. 6% of all schools are not suitable for schooling, 12% need some attention.

3.12 Teachers in rural schools

Seventy-four percent of South Africa's teachers were qualified in 1998. With

the exception of the Northern Province, provinces with higher proportions of rural schools have more un(der) qualified educators.[7]

3.13 Literacy

If adult literacy is defined by attaining at least a Grade 7 education, then 63% of South Africa's population can be considered illiterate. Nineteen percent of the population has received no education at all, the majority of these individuals residing in the largely rural provinces of the Northern Province, Mpumalanga, Eastern Cape and Kwa-Zulu Natal. More females than males are illiterate with almost one in two females (47%) having no, or very little education. At the other end of the scale, 16% of South Africans have completed secondary school and 6% have been educated beyond secondary level.[8]

Poverty has impacted on educational levels. In 1994, primary school enrolment rates (85% – 90%) were similar across all income groups but at secondary level there were vast differences between the proportion of the ultra poor (46%), the poor (57%), and the wealthiest group (83%), enrolled. Tertiary levels of enrolment are uneven with enrolment rates of 4% and 38% for the ultra poor and the wealthiest group respectively.[9]

Gender differences were significant with more women than men (30% and 24% respectively) having had no education and fewer women than men (10% and 13% respectively) having gained school leaving certificates. These differences were most marked in the Northern Province.

ABET programmes have largely failed their learners despite good intentions and fairly large sums of money being directed to both government and private ventures. A University of Natal survey estimated that there were about 335, 000 ABET participants in 1996. These were spread across six major providers including:

State	(29%)
Companies	(42%)
NGOs/CBOs	(19%)
Parastatals	(5%)
Municipalities	(2%)
Religious organisations	(1%)
Other	(3%)

However estimates of drop-outs indicate there may be as many as 50% who leave before completing the programme. Of the learners who complete courses, a further 50% forget all they have learnt, indicating the poor quality of the programmes.[10]

3.14 School leaving examination

School leaving pass rates vary across the nine provinces but are lowest in the rural provinces. Table 3 illustrates the failure rate in one predominantly rural and urban province and nationally.

Table: 3 School leaving (Grade 12) examination results of two provinces and the national total, by gender (Bot & Schindler, 1999)

Province	Percentage Pass 1997
Northern Province	
Males	36
Females	29
Total	32
Western Cape	
Males	79
Females	74
Total	76
National	
Males	51
Females	44
Total	47

This table illustrates the range in examination passes across South Africa as well as the substantial differences in the results of female and male candidates. Even though fewer males are in grade 12 (40%) more males than females pass.

The low success rate of South African students was one of the reasons why the

education ministry chose to treat curriculum reform as a priority.

3.15 Curriculum policy

Curriculum reform in SA has attempted to support an education system that provides equal opportunities of access and outcome in education and training to all citizens of SA. This was to be achieved by providing a relevant, learner-centred system that promoted critical thinking, economic growth and development, social responsibility.

A new qualifications framework

South Africa has established a National Qualifications Framework (NQF) and created an implementing agency, the South African Qualifications Authority (SAQA). The NQF is a central pillar of the government's strategy for human resource development. The idea of a National Qualifications Framework for South Africa emerged in the early 1990s from the intention of transforming the nature and quality of education and training in South Africa. It is described as a human resource development system in which there is an integrated approach to education and training which meets the economic and social needs of the country and the developmental needs of the individual.[11] This means that different forms of learning, whether they be full-time or part-time, distance learning, work-based learning, or life experience, will be recognized, accredited, and registered within this new framework. This integrated approach to education, training, and development is designed to enable individuals to learn regardless of age, circumstances, and level of education and training.

The South African Qualifications Authority Act of 1995 established SAQA as the organization responsible for overseeing the development and implementation of the NQF.

Legislation stated that the key principle underpinning curriculum reform was to be that of Open Learning. The legislation stated that:

Open Learning is an approach which combines the principles of learner centredness, lifelong learning, flexibility of learning provision, the removal of barriers to access learning, the recognition for credit of prior learning experience, the provision of learner support, the construction of learning programmes in the

expectation that learners can succeed, and the maintenance of rigorous quality assurance over the design of learning materials and support systems. South Africa is able to gain from world-wide experience over several decades in the development of innovative methods of education, including the use of guided self-study, and the appropriate use of a variety of media, which give practical expression to open learning principles.[12]

Central to Open Learning, is the principle of learner-centredness. In essence this acknowledges that the learner should be the focus of the educational process and should be regarded as an active participant in an interactive process. Education should not be viewed as a transmission procedure, where there is a one-way flow of information from the source of knowledge (whether it be an educator or an educational course made up of one or more media) to a passive learner. Rather, education should encourage independent and critical thinking. This is facilitated by regarding the learner as an active participant in the educational process, and can be further enhanced by offering learners choices, possibilities, and contesting viewpoints within that process. In addition, the principle of learner-centredness implies that education should develop problem-solving skills and competencies. This, in combination with efforts to encourage independent and critical thinking, empowers learners to be able to interact confidently and effectively with society. Put differently, one essential aim of education is the development of the whole person, and particularly, the ability to understand oneself and the world in which one lives. Finally, learner-centred education should also build on learners' own experiences, using these as the starting point and basis for any learning process. (Butcher, 2000). If teachers are to build on their students' social and cultrual circumstances their understanding of these is an essential aspect of learner-centredness.

The concept of lifelong learning is central to openness. It argues that learning should continue throughout life, rather than being limited to childhood, and should be of direct relevance to the needs and life experience of learners. Lifelong learning implies that learning is affected by a whole spectrum of influences and not just by what happens in schools and related institutions. These influences range from the highly systematic and organized (such as conventional schools) to the unsystematic and unorganized (such as a parent playing with a child). Learning is thus something

which lasts a lifetime (it is 'lifelong'), and is also related to the whole range of influences people encounter in the course of living their lives.

The concept of open learning entails increasing the flexibility of learning provision to cater for the needs of learners. This implies that learners will increasingly take control of and responsibility for their own learning.

The emergence of Outcomes-Based Education (OBE) in SA[13]

The curriculum restructuring process followed a competency-based approach that was changed (with high levels of contestation) into an OBE for schools and in the workplace. Recently the following arguments have been made in support of OBE:

Social arguments. managing OBE can be done through democratic participation allowing the different cultural groups to express their own vision of education whilst building national identity.
Economic arguments. South Africa's curriculum was seen as a hindrance to supporting the development of the skills needed to allow SA to compete globally.
Management arguments. Proponents of OBE claim it is to encourages greater effectiveness and efficiency in schooling by guiding management decisions within the system and making teachers and schools more accountable.
International trends. A number of developed countries (notably, USA, UK, Scotland, Australia and New Zealand) have developed OB or competency-based approaches as ways of managing education.
Education, training and lifelong learning. OBE provides better articulation between basic and further education (primary and secondary for students and adults), vocational and tertiary education.

What is OBE?

Outcomes-based education distinguishes between outcomes of learning and inputs. Curricula and teaching are inputs. So are management decisions (at all levels of the organisation), management structures (including school timetables), resources, support systems and facilities. For learners, inputs arise not only in the

classroom, but the playground, the community and the home. The central task for all tiers of the education system schools is to recognise and manage these inputs, so as to maximize learners' achievements.

But all countries implementing OBE have found that technical problems constrain implementation. Some of these are:

* The chosen outcomes need to be appropriate and widely understood. In fact the selection and formulation of outcomes, in most countries, has been highly contentious.

* Reducing the school system to a small set of prescribed outcomes runs the risk of narrowing the content taught and teaching methods used in the classroom. If outcomes are defined too narrowly they can miss out on creative and interesting facets of the world. At the same time, attempts to introduce outcomes that are too complex can lead to great confusion.

* Assessment data can be used formatively (in shaping management decisions and teaching at all levels) or summatively (as a way of applying pressure on 'under-performing' teachers and schools). Schools need to strive to strike a balance between these two.

* Assessment instruments and methods can distort the learning and the outcomes especially where pencil and paper tests are used to assess performance. Because learners' results on the tests have critical ramifications for teachers, principals, schools, districts etc., teachers teach for the tests rather than the (broader) outcomes. Therefore in essence, OBE can be as narrowly prescriptive as examination-driven systems.

* Traditional education focussed on the quality of inputs-syllabuses, texts, equipment, teaching and curriculum design-assuming that improved inputs would lead inevitably to improved outcomes. Outcomes-based education turns this assumption around, arguing that focus on the quality of outcomes will lead inevitably to improvements in the quality of inputs. Both claims are simplistic. In practice, they both operate, even if one or the other is unspoken.

* Outcomes have to be defined with sufficient generality that they enable learner-centred education. The balance between developing learning materials that match the experiences and contexts of learners in a particular school and location and the need for learners to achieve the same outcomes across the country is difficult to

achieve.

These problems can be overcome, but the solutions depend on:

* Careful formulation of the outcomes, assessment criteria and performance indicators.
* Assessment techniques that are valid in relation to the outcomes, the curriculum in action, learners, teachers and schools.
* Balancing assessment as a guide to formative development of curriculum, teachers and schools, and assessment as a summative, accountability device.
* Having, alongside the set learning outcomes, (a) a framework of principles and values that guide personal interactions and processes within the system and (b) management plans and objectives.

The choice of outcomes

In South Africa, the outcomes-based education frameworks have an overarching set of 'critical outcomes' (South Africa), which inform 'specific outcomes' in selected learning areas. South Africa's critical outcomes flow from the Constitution and are written in the form of outcome statements:

Learners should be able to successfully demonstrate their ability to:

* Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation.
* Identify and solve problems by using creative and critical thinking.
* Organize and manage themselves and their activities responsibly and effectively.
* Work effectively with others in a team, group, organisation and society.
* Collect, analyze, organize, and critically evaluate information.
* Use science and technology effectively and critically, showing responsibility towards the environment and the health of others.
* Understand that the world is a set of related systems. This means that problem-solving contexts do not exist in isolation.
* Demonstrate awareness of the importance of effective learning strategies, responsible citizenship, cultural sensitivity, education and career opportunities and entrepreneurial abilities.

Learning areas in the new curriculum are:

* Language, literacy and communication,
* Life orientation,
* Mathematical literacy, mathematics and mathematical sciences,
* Human and social sciences,
* Economics and management sciences,
* Natural sciences,
* Technology,
* Arts and culture.

Because South Africa's specific outcomes are considered different from the aims of traditional curriculum they are not part of teachers' backgrounds and experience. For example, outcomes in Natural Sciences include, alongside the expected ones of concept development and process skills:

* Demonstrate understanding of how scientific knowledge and skills contribute to the management, development and use of natural and other resources.
* Demonstrate knowledge and understanding of the relationships between science and culture.
* Demonstrate knowledge and understanding of ethical issues, bias and inequities relating to the Natural Sciences.

These outcomes are expected to drive classroom processes as well as content. For example, critical outcomes such as innovative problem solving, personal management and teamwork can hardly be achieved if learners are not involved in solving problems, managing themselves and working in groups in their classes.

Implementing OBE

In South Africa, the shift to outcomes-based education has been dramatic. The White Paper on Education and Training was published in 1995, the Curriculum Framework in 1996, the Curriculum 2005 document in 1997, and Assessment Policy in 1998. The Minister of Education officially launched Curriculum 2005 in March 1997, outlining plans for its implementation in Grade 1 in 1998. The policy

linked to a range of others, developed in parallel. These included the National Qualifications Framework and the Norms and Standards of Teacher Education.

Some people maintain that this rapid pace will lead to wide variations in standards and focus between teachers. Others say that it is likely to lead to teachers refusing, or not being able to carry out their responsibilities and only use published learning programmes (inputs).

Problems and tensions

As Butcher (2000) comments, OBE is of course not a 'good' or 'bad' concept; its value depends on the way in which it is implemented and measurement of this value will shift significantly according to the context in which implementation is taking place.

However the difficulties in implementing curriculum reform has led to a heated debate about the usefulness of the concepts underpinning curriculum change, notably OBE, and the pace of the change process.

Many commentators agree that the fact that many teachers in SA have been poorly trained and that insufficient resources have been made available for retraining teachers in the new principles and associated pedagogies, will lead to the failure of the reforms. The difficulties being experienced by teachers has been exacerbated by the complexity of the language used to describe the OBE learning programmes[14]. Nevertheless proponents of the system[15] argue that the emphasis of OBE on accountability and equity, the view of students as being able to achieve success, the mix of local and central responsibility for implementation and development, and the devolving of responsibility for learning to the teachers and the students, are some of the factors that respond to many of our previous difficulties. In essence, it is argued by some that the need to overhaul the curriculum to make it more relevant to today's economic and individual needs means that no matter how difficult, the reform must proceed.

Ⅳ Lessons Learnt

The radical transformation of education in SA and China in the period following the upheaval of the political system gives us particular insights into the nature of educational change. In this section of the report some lessons learnt during the process of transformation in the two countries.

4.1 Policy Development

Educational innovations and policy development take place in particular contexts. This means that policy development cannot be isolated from implementation.

The pace and process of change differed in SA and China. From 1949 till today, China has introduced changes in a step-by-step fashion over a number of years in accordance with available resources and political and social circumstances. A departmental official in SA, on the other hand, claimed that the rapid pace of change in SA can be seen as a shock immersion into the implementation process.

It seems as though both tactics have caused problems. In China, tensions and contradictions appear to have arisen as one part of the system lagged behind others. For example pedagogy remains traditional whereas subject matter is influenced by economic demands as China modernizes her economy.

The rapid rate of change in SA coupled with a shortage of resources and the lack of skills required to bring about change has resulted in a range of difficulties. In the case of the curriculum the proposed programme has had to be revised continuously, leaving a trail of uncertainty and confusion about the new curriculum amongst teachers, parents and students.

4.2 Access

If school attendance is hampered by a number of factors (health, poverty, poor quality of education) then upgrading schooling must be tackled in a holistic way. This should begin with a needs analysis to understand the problems facing the communities and how the communities perceive the problems.

Marginalised groups (poor/ rural/ girls/learning disabled etc) require special consideration. Their circumstances must be carefully examined so that strategies to encourage them to attend school can be put into place.

4.3 Supplementing State Resources.

In countries where funds for development costs are limited, multiple channels of funding should be used to supplement state funding. This is particularly important where there are inequities between rural and urban areas as funds from urban communities can be directed towards the rural areas.

Communities can reduce the financial burden on poor families by channeling funds to the poor in a variety of ways. It seems likely that these programmes will only make substantial contributions if accompanied by a great deal of advocacy of the programmes.

4.4 Partnerships in Education

Partnerships between the state, the public sector, the NGO community, South African and international donors in SA are implementing a range of school improvement programmes in disadvantaged urban and rural schools. It is too soon to tell if these will be able to go to scale.

Partnerships between different parties in China have played a significant role in providing funds for school improvement and financing marginalised students. CBOs (NPO) such as women's groups and the Youth League have contributed greatly to these schemes.

In SA many new forms of partnerships and collaborative ventures have taken place since 1994. Prior to 1994 the NGO sector ran many of the innovative teacher or learner support programmes, funded by local or international funders.

But since 1994 funding has been directed to the government and particularly to projects that are aimed at implementing new policies. The new bureaucracy does not have the expertise and manpower to implement programmes so it has involved other organisations in developing projects, managing and evaluating them. In some cases projects are advertised and consortia of consultants and local or international organisations tender for the project. For example, the evaluation of the implementation of the new curriculum is being done by local NGOs whereas projects

relating to the introduction of new skill programmes are being awarded to consortia of local and international organisations.

4.5 An Outcome of an Examination-driven Education system

Understanding the roots of the competitive nature of school system

This year the Minister of Education in China called on teachers to reduce the strain on students in the middle and senior schools by giving them less homework. Whether or not this call will be heeded will depend on the reasons for teachers giving the students too much work.

One reason given by many people interviewed is that the system is driven by the school-leaving examination. As a result teachers may give students a great deal of homework to prepare for the examination. Also teachers may use what can be called traditional teacher-centred pedagogies, that is, practices that do not promote student discussions in class but tend to be based on rote learning techniques. The stress is on the students learning the content of the subject rather than on problem solving and creative aspects of the particular subject being taught.

Other educators in China pointed to the high level of competition for spaces at junior middle and senior schools. They said that even if teachers heeded the call, parents would not, as they wanted their child to get into university, as they knew that entry to the job market is closely related to educational level. It is also noteworthy that entry to programmes for marginalised youths such as the Hope Project is also dependent upon whether the student who has applied is considered a good student.

These analyses obviously have merit but one needs to delve more deeply to understand this phenomenon.

Firstly one must look at the political economy and social circumstances of families. It is not the brief of this report to do an in-depth analysis of these issues but some points are relevant to this discussion. In the last decades the state has prioritised education for all and devoted a considerable proportion of the states' budget to education. This is replicated at provincial, county and village/municipal levels. As a result, the society value in education has increased. Secondly, in recent years family incomes have risen rapidly. Even though education is no longer free in China (the proportion of the household income spent on education is now higher

than housing), it is apparent that many families have the money to pay for additional tuition. In fact, some families in urban areas hire teachers to study with their children. The effects of the one-child family add to the parents' increasing interest in their child's education. Parents are able to devote income to their one child so that s/he succeeds in life. The limit on the number of school spaces as students move up the educational ladder is probably proportional to the level of competition in the system. (The Chinese government has realized this and committed extra university places for the coming year and is now aiming for 12 years of compulsory education for the most developed provinces.)

But of course one will never get to a situation where all students can attend a university. Some countries offer equivalent technical programmes to accommodate students who do not want/are not suited for an academic education. Until recently highly prized jobs tend to be those requiring professional tertiary training at a university such as medicine, accountancy etc. Today students obtaining technical training are able to compete for top jobs. Therefore, one way of tackling high levels of competition that are exacerbated by limited spaces is to offer parallel courses.

In SA shortages of space at tertiary levels is to some extent being met because a number of international universities are offering courses to SA students, either fully by distance (with the programme being run in their university) or they form partnership arrangements with a SA university. There is a great deal of tension over this at present as the Ministry of Education feel that in the first instance, some of the institutions may be offering education of an inferior qualtiy and in the second, that the overseas universtities are using the SA taxpayers money by operating from the subsidized university. But even if the SA Ministry is able to curtail and regulate these institutions, it is clear that the numbers of courses open to SA students by overseas institutions will rise in the short-term.

Possibly China will feel the effects of this trend soon.

Some people argue that another outcome of an examination-based system may be that it tends to reinforce traditional teaching methods. This is of course not necessarily the case. If the examination favours problem-solving and creativity, teaching methods will have to ensure that their students can solve problems. But if examinations test students' ability to repeat facts, then teachers will have to make sure that students can do this.

The blame attributed to the examination for the traditional methods of teaching also must be explored further. This is also a complex issue that needs to be unpacked before one can understand why teachers use what are today referred to as traditional, teacher centered approaches and whether and how these can be changed.

4.6 Teacher vs learner centered approaches

The cognitive theories of Vygotsky and Piaget today are used to build a conceptual framework for child-centered approaches that consider children as active learners in the learning process. The centrality of communication skills and interpersonal relationships in solving problems in these pedagogies has radically changed classroom practices in school systems subscribing to these changes. Teachers encourage group work to improve students' communication and social skills rather than having children work on their own in rows. As a result, classrooms are characterised by groups of children talking and doing rather than rows of children silently listening. Generally, it is supposed that activity and communication is fostered by resource based teaching so a range of learning materials may replace the textbook.

Changing from the teacher-centred approaches to pedagogies that use activities and problem solving cannot be done in a piecemeal fashion. If China's educators wish to tackle some of these changes, it is possible that change has to be considered holistically. Once the aims and objectives have been considered other facets of the curriculum, namely the learning areas, classroom practices and assessment strategies and resources can be described making sure that they are consistent with the aims of the curriculum.

The time frame of changes has to consider the resources (HR and material) needed to effect change.

The changes currently being made in the curriculum in SA is an example of such a holistic strategy of curriculum change. But as discussed above, the problems being experienced in SA indicate that such a venture can only be undertaken if there are enough resources (material and human), the political will to bring about change and the means of advocating the changes to the entire school community. Teachers must be persuaded that the reforms are necessary and will improve teaching and learning. Teachers have to have the knowledge, skills and ascribe to the values

underpinning child-centred, problem solving approaches.

4.7 Teacher training

It is commonly accepted that teacher training has to be ongoing to give teachers support during the introduction of new initiatives. As a result, preservice and inservice training are essential aspects of teacher development.

Provinces in China are attempting to offer training to teachers in rural schools. For example, the mobile training unit is proving to be a cost-effective way of providing short-term training to rural teachers.

However, post-graduate degrees are offered at universities so teachers in rural areas generally have to take leave for one or two years to tackle these programmes.

It is possible that universities should provide distance training programmes so that teachers are allowed to remain at their schools whilst furthering their studies. There are many examples of on-site training programmes in other countries. These may be short-term such as those offered by the mobile training center or degree courses. McGill University in Canada for example provides training for First Nation teachers and has run a course in the remote areas of Peru. These tend to be offered as mixed-mode programmes where some instruction is done by distance (printed or electronic media and satellite broadcasting techniques) and on-site lectures and classroom support. In SA a number of universities and NGOs have recently begun training rural teachers using these modes of delivery. Zimbabwe Integrated National Teacher Education Course (ZINTEC) in Zimbabwe has an active history of engagement to with teachers where teachers are given crash training programmes with a combination of distance and residential courses in a response to acute staff shortages. In this programme schools group themselves together for the purpose of exchange of expertise and pedagogical experience as well as for informal in-service activities. [16]

A key lesson to be learnt from all of these is that distance programmes have to be developed as mixed mode programmes that offer on-site support. Support on the ground is essential to break the isolation of teachers learning at a distance and most programmes work in clusters at institutional levels or in more remote areas teachers have to have a buddy/friend to work with.

4.8 The use of ICT

It seems as though rural education in China is not yet drawing on the potential for Information Communication Technologies (ICT) to improve the quality and dissemination of rural education programmes. The use of ICT is rapidly growing in more developed countries such as Australia where teaching programmes are disseminated from a central unit to schools and institutions in remote areas. This allows isolated schools to have access to a broader range of programmes.

Of course administrating rural schools using email in addition to the postal service must increase efficiency and reduce costs.

A computer education training programme in Swaziland is at present embarking on teaching teachers to use computers in their classrooms and to administer their schools. The programme has advised that in addition to training teachers and students in the use of various software packages, it is essential to select key teachers in a district for additional training. This should cover technical aspects (repairs an trouble shooting, upgrading hardware etc.) and teacher advisors who are skilled in the use of the internet and have a knowledge of educational software that are appropriate and relevant for teachers to use in conjunction with their textbooks.

V Conclusion

This paper has reported on the fundamental features of education in China and South Africa, in an attempt to understand the ways in which education can support rural development. Both countries experienced a major political upheaval, and even though there is a 50-year time lag between these events, political changes ushered in radical educational transformation.

Today China is in the fortunate position of providing basic education to almost all of its citizens, both at school and offering education to youths and adults, despite lags in rural areas, particularly amongst women in minority groups. Changes were made in a stepwise fashion, with different contexts dictating the pace of reform.

In contrast, South African educators have attempted to implement extensive changes at a rapid rate to meet the Constitutional challenge of equity, redress, non-racism and non-sexism. The new policies are in line with the most innovative changes made by developed countries, placing enormous stress on the government officials who often do not have the resources or the capacity to implement the policies. In fact, some people have commented on the breakneck speed at which new policies are being introduced. Although financing strategies are directing more funds towards the poorest communities, the process of implementation has tended to ignore the massive inequities between different regions of the country, which arose during the apartheid era.

APPENDIX 1

Case Study: Hope Project.

Started in 1989, as a project of the Youth League, the Hope Project set out to improve access to education for poor children in China and to upgrade the teaching and learning environment. Today the Youth Development Foundation manages the project.

The Hope Project operates at all levels of the system, with a central, provincial, county and local offices. Funding is obtained through active advocacy internationally and locally. Individuals and the private sector can contribute at any level and can also select a child/ren whose details are reported through adverts in the local press and provide support directly to the child. Alternatively a funder can opt to fund a child/ren of a particular sex from a particular region of the country.

Advocacy to enlist public support includes articles on children in need in local newspapers, the production of marketing products (postcards), and publishing pamphlets on the project.

Children are selected by the child or his family applying to the local office to become a member of the project. This is then considered at various levels of the project, including the evaluation of the request by the school or village structure. It is evident that to be selected children must not only be poor, but their school performance must be good enough to make them worthy of selection.

What is most interesting about the project is the relationship forged between the children and the funders. School reports are sent to funders who may even send clothes and other articles to the children. Funders also choose if they want their money to be used for the national office, regional offices or even can select the child they wish to support through the press.

Schools are selected by district or village level project offices recommending that school upgrading is financed by the Hope Project. Schools may be built in areas where there are too few or existing schools upgraded.

Between 1990 and 1997, in the Anhui province, 320 schools have been built or upgraded and 101 – 705 children supported.

Interviews with some Hope Students at a school in Maanshan and advertisements placed in the paper showed that the project is supporting children whose lives have been disrupted by illness or death of parents, which has meant that the family no longer can pay school fees.

APPENDIX 2

Access to education in Zambia

Zambia received independence from Britain in 1964. In comparison with other countries under colonial rule, Zambia fared badly as only 12,000 Zambians had a secondary school certificate I [1964].

Quantitative expansion of the system took place after 1964; primary school enrolments increased fourfold growing at an annual rate of 5,5%. Secondary schools grew an average rate of approximately 11% during that time. By 1990, there was space for 90% of Zambian children in primary schools.

Tertiary education expanded with the establishment of two universities and 11 colleges of education. Vocational education was boosted by the introduction of training in crafts and technicians in a network of technical institutions.

An intersting development was the Self-Help Action Plan for Education (SHAPE) that was designed to improve the professional development of teachers and link academic learning at schools with Eduction With Production (EWP). This project was part of the MoE involvement in improving the quality and relevance of education.

Teacher support was provided by SHAPE schools becoming Teachers' Centres that had a resource room which could service neighbouring schools (UNESCO, 1996; Hoppers, 1998). Local resource input was obligatory through the development and implementation of learning-related school productive activities (similar to some of the programmes witnessed in Northern Jiangsu).

However financial constraints slowed down the growth and maintenance of the system. Even though SHAPE has continued in the 1990s. Priority areas remain related to the delivery of primary education, based on equity, social, economic and educational grounds.

APPENDIX 3

Education in Swaziland: Access and Curriculum Policy

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Rural Education Programme
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LIST OF ABBREVIATIONS

GTZ	German Agency for Technical Co-operation
ICT	Information and Communication Technology
IDE	Institute for Distance Education
INSET	In-Service Teacher Training
IT	Information Technology
JC	Junior Certificate
MIS	Management Information Systems
MITC	Manzini Industrial Training Centre
MoE	Ministry of Education
NERCOM	National Education Review Committee
QWG	Quality Working Group
SADC	Southern African Development Community
SCOT	Swaziland College of Technology
SNAT	Swaziland National Association of Teachers
TIDC	Teacher Information Development Centre
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNISWA	University of Swaziland

I Swaziland's Education System

1.1 Financial Background

For the five-year period 1987 – 1991, the economy of Swaziland benefited both from favourable climatic conditions and increased foreign investment. This meant that Swaziland, unlike many other developing countries, had sufficient resources to develop and expand its educational system. However, beginning in 1991/2, real growth began to slow and the financing of social and infrastructural projects decreased. Today investment expenditure has to be rationalised according to carefully targeted priorities.

Nevertheless, education remains a key priority for government: in the 1998/9 financial year, 26% of recurrent expenditure is allocated to education and of this 65.% covers personnel costs. The budget covers teachers' salaries and limited funds for infra-structural development; the latter generally becomes the responsibility of the parents. School fees are compulsory and cover building funds, maintenance and the cost of laboratory and practical sessions in specialised subjects such as science, biology, agriculture and home economics. In addition, students pay for textbooks and examination fees.

1.2 Policy Framework

The Ministry of Education has set up various commissions and working groups to review educational policy. Produced after independence in 1968, the Imbokodvo Manifesto declared the importance of instilling the cultural, political and social values of the newly-independent nation into education. Two reviews followed, one in 1975 and another in 1985, which focused on access and the curriculum. More recently, in May 1994, the Ministry of Education (MoE) established a Quality Working Group (QWG) to prepare a report on improving the quality of primary education (QWG, 1995). This document cannot give justice to the range of recommendations made in these reviews and only covers information relevant to the introduction of ICT in schools.

Following independence and the massive expansion in education, resources in the 1970s were directed towards achieving universal primary education. This goal

was achieved by the 1980s. Since then, efforts have been made to expand access to secondary school whilst ensuring that the curriculum will be relevant to the broader social, cultural and economic goals of the Kingdom of Swaziland.

The shift from an economy based on agricultural production to wage sector employment led to calls to diversify the school curriculum and particularly to provide secondary and post-secondary students with relevant vocational skills. The terms of reference of the National Education Review Committee (NERCOM) of 1985 stated that the curriculum must aim at:

The comprehensive development of technical/vocational education across all levels of education and training as well as the establishment of a link between education and preparation for a working life (NERCOM, 1985:5).

This need for vocational skills, however, cannot be achieved at the expense of children's cultural identity (NERCOM, 1985:14).

Today it is recognised that an overall objective of the education sector is to provide education appropriate to individual needs while meeting development requirements.

1.3 Demographic and Planning Context

Statistics on school provision

Swaziland has a total population of over a million people, the majority of whom live in rural areas. A result of the annual growth rate-averaging over three per cent per annum-and improved access to school has been a substantial increase in school population (see Table 1). The average annual growth rate for the primary and secondary sectors is 2.9% and 4.9% respectively. Thus indications are that by the year 2010, there will be roughly 50% more pupils in primary schools and almost double the number in secondary schools.

Table 1. Growth in Primary and Secondary School Population

	Primary	*Secondary*
1968	50 000	5 000
1996	200 000	60 000
2010	300 000	120 000

The Ministry of Education is responsible for all formal education; this includes

pre-primary; primary; secondary and high, post-secondary and special education (including adult literacy and distance education). 17 Schools are fairly distributed among three of the four administrative regions - Hhohho, Manzini and Shiselweni. Lubombo has fewer schools because much of the land is freehold and operated commercially (NERCOM, 1985: 10). The majority of schools are located in rural areas.

Table 2 provides information on teacher and student numbers in the primary and secondary sector. The figures illustrate the substantial drop in student numbers after primary school, a trend which continues throughout high school. Projections from the MIS 1996 figures indicate that this year there are 17 515 Form I students. In recent years student-teacher ratios have shown a steady increase because building programmes have not kept pace with increased enrolments.

The school system is characterised by fairly substantial repeater levels: 26% of all children in primary school and 16% of secondary school pupils repeat a grade, and 4, 8% and 7. 5% of primary and secondary school pupils respectively leave. There are approximately equal numbers of girls and boys at school although there is evidence that girls tend to complete school earlier than boys. (QWG, 1995: 1).

Table 2. Numbers of teachers, pupils and schools for the primary, secondary and high school sectors, 1998 *

	Primary Schools	Secondary & High Schools
Pupils	212 826	65 130
Teachers	6 210	3 316
Schools	543	173
Pupil: teacher * *	39	27

Source: MIS Research and Planning Unit, 1996

* Projections calculated according to 1996 population figures

* * This includes government, government-aided and private schools. Pupil: teacher ratios are higher in government than in private schools.

The provision of electricity

Budget cuts have affected the provision of basic services and facilities to schools. A report on the electrification planning project (Davies et al., 1997) conducted for the Government of Swaziland includes statistics on the number of unelectrified schools (Table 3).

Table 3 The supply of electricity to schools

	Total number of schools	Schools without electricity (%)
Primary	538	358 (65%)
Secondary	63	45 (70%)
High	107	21 (20%)
TOTAL	708	424 (60%)

Source: Davies et al., 1997

The report points out that many of the schools without electricity are close to the existing grid and therefore connection costs would be relatively low.

Off-grid options, such as solar panels, can be used to provide a fairly reliable source of energy for computers but they do pose security problems as panels are often stolen.

Constraints facing formal schooling

Problems at primary schools, particularly in rural areas, include service provision, too few schools, and teaching methods. Specific issues raised by the NERCOM and the QWG reports are:

* Long distances to school;
* The heavy financial burden of school fees and other related expenditure;
* The lack of relevance of the curriculum to the needs of children;
* Inadequate classroom and instructional facilities;
* The prevalence of rote learning (NERCOM, 1985:71; QWG, 1995:7).

Constraints facing secondary schools relate to: the wastage in the system

(because of high dropout and repeater rates); the need for a practical, vocational stream for secondary school students that has the same status as the academic stream; and the inadequate maintenance service (NERCOM, 1985:77).

Discussions with teachers at various schools and institutes indicate that in recent years budget cuts have reduced maintenance programmes in all educational institutions and the responsibility for maintaining equipment and buildings has devolved to the school community. The Ministry of Works has awarded tenders for maintenance to certain firms but this process is not running smoothly and costs are high.

1.4 Curriculum Development and Examinations

Creating new subjects

The first step in the process of including a new subject in the school curriculum is to create a subject panel to draw up a syllabus, under the auspices of the National Curriculum Centre. After testing in pilot schools, the syllabus is revised before being introduced to all schools. Generally this process takes about one year to complete.

Examiners for the new subject are appointed once the curriculum has been developed and approved. Internal examinations at Standard Five and Form III (JC) are controlled by the Autonomous Examinations Council. Form V students write the Cambridge (O-Level) examinations and a few students progress to A-Levels.

Prevocational programme

The prevocational programme is a new initiative that aims to make the curriculum more relevant to schools by widening the scope of practical education; it offers four new subjects to Form IV and V students. The programme is co-funded by the African Development Bank and the Swaziland government. The four subjects are business studies, agriculture, hospitality/home economics and technical skills. Computer studies will be introduced as part of the Business Studies cluster. Building of computer laboratories at one of the 17 pilot schools has begun.

1.5 In-service (INSET) Programmes

In-service programmes are considered a priority in the department, the university and the professional teachers' organisation, the Swaziland National

Association of Teachers (SNAT). Various INSET programmes operate and include curriculum development, preparation and testing of teaching materials and informing teachers of new developments relating to their subjects.

Each region has a Teacher Information Development Centre (TIDC) to enhance the administrative efficiency of the INSET provision. These are used as venues for the professional development of teachers, both to assist them to produce teaching aids and to share ideas and practices.

Each TIDC has an advisory committee comprising a teacher leader responsible for the day-to-day operation of the TIDC, regional inspectors, practising teachers and head teachers (QWG, 1985:25). The TIDC also has a shop equipped to assist teachers to duplicate materials and provides tools to assist teachers to construct teaching aids. The TIDC produces newsletters to share ideas and events with teachers in the region.

According to the QWG report, the INSET programme requires additional support to co-ordinate INSET with regular supervision in schools and provide relief teaching while teachers attend the programmes.

1.6 Tertiary Education

Teacher training

Tertiary education is divided into three sectors: vocational training, teacher training and university. Teachers can study for diplomas and degrees in education: the Primary Teachers Diploma at Ngwane and Nazarene, a Secondary Teachers Diploma at William Pitcher College, and the Graduate Diploma and a four-year education degree at the Kwaluseni campus of the University of Swaziland (UNISWA).

The expected number of teacher graduates from teacher training colleges in 1998 is 775. Based on the 1996 MIS projections, the Swaziland College of Technology (SCOT) and UNISWA had 101 and 311 education students respectively for the 1996/7 year of study.

Even though staff at two of the teacher training colleges visited considered computer education a priority, colleges do not have facilities to offer their students a course in computing, although the Mathematics Department at William Pitcher College has developed a computer studies curriculum. From 1999, all UNISWA

education students will be given a course on computer literacy.

Distance education

Through UNISWA's Institute for Distance Education (IDE) the Department of Commerce offers one module of the commerce degree in computing. Students can use computers over weekends.

Future plans include the creation of stand-alone modules for credit and non-credit programmes.

The Swaziland College of Technology

SCOT is the main institute for higher levels of technical and vocational learning and offers a range of technical courses, including education. It is possible that the three-year technician's training programme can be modified to provide training for school technicians.

1.7 Vocational Education

A range of institutions controlled by the Swaziland Skills Centre Board provide training to youths in various trades including motor mechanics, printing, upholstery, sewing and welding. Training is based on the principle of Education-with-Production.

A new vocational training venture has been initiated between the Ministries of Education and Labour, the Chamber of Commerce and Federation of Employers, and various labour unions. It is supported by GTZ, the German Agency for Technical Co-operation. The programme aims to provide trainees with hands-on training in the workplace, coupled with relevant formal training.

Discussions indicated that these projects would welcome support in the field of computer education suitably tailored to meet the trainees' sphere of training.

1.8 Support from Other Countries

A number of ventures have been made possible by foreign donor support. In addition to the support from GTZ for vocational training, UNESCO currently has a high profile in the field of information technology (IT), supporting policy development in SADC countries, and the Chinese government has offered to support

IT training at schools.

1.9 Delivery of Computer Education by Private Agencies

Private organisations and institutions are training increasing numbers of people as the demand for computer education grows. It appears that the courses are expensive and often do not meet expected outcomes. Many trainees soon forget what they have learned as they do not have the equipment to practice newly-acquired skills.

It is clear that there is a growing demand for computer education and that many people cannot afford the cost of private courses. Skill training centres should be encouraged to participate in discussions relating to the CEP so that they develop the skills to offer programmes at their centres. There is also no reason why they should not use the CEP manuals once these have been developed and tested.

II Current Status of Information and Communication Technology in Schools

2.1 Background Information

In common with other nations in Africa many problems hamper the use of computers in Swaziland:

* The poor general level of telecommunication facilities.
* The high cost of equipment.
* The limited in-house skills pool for simple computer maintenance.
* Limited technical skills for the establishment of electronic network services.
* Few appropriate training materials and little effort to train the trainers.
* Poor collaboration and co-ordination between different projects leading to overlap.

2.2 Study of IT in Swaziland's Educational Institutions

Recognising the need to begin computer education in schools, the Ministry of

Education requested UNESCO to sponsor a study of the use of computers. This was carried out in 35 schools and colleges, 18 of which had computers. Some of these are well-endowed private schools (Dlamini & Ndlangamandla, 1997a, 1997b). The workshop reports provide a comprehensive background to the current status of ICT in Swaziland, detailing broader issues relating to policy formulation for ICT at schools as well as describing existing hardware and software used in primary, secondary and tertiary institutions.

The following remarks are based on the discussions held at the workshops and recommendations made in the reports.

The researchers claim they found widespread acceptance of the idea of introducing computer education into schools and that parents are prepared to fund the purchase of computers. In fact, even though most of the schools and colleges included in the survey did not have computers they said they had plans to acquire them through donations or school funds.

Despite the interest in using computers, the study revealed a number of weaknesses affecting computer education:

* Power fluctuations in urban areas and the lack of electricity in many rural areas constrains the use of computers by damaging hard drives and modems.

* Few schools had a service contract. Even though the new models were in working order, it appears that schools experience a number of problems relating to: slow and unreliable or even unavailable telephone lines; suppliers being in South Africa (making support and maintenance costly and not readily available), and the lack of qualified teachers (Dlamini & Ndlangamandla, 1997a: 19).

* In general the researchers found that schools with newer-model Pentium PCs experienced fewer difficulties than those with older machines.

* Four schools had computer laboratories where computers were networked and the school had access to the Internet.

* Of the schools with computers, most used them for administration; approximately one-half taught students various packages, the most frequent one being word processing.

* Teachers in charge of computer education are not suitably qualified to teach the subject. (The delegates pointed out that this problem is unlikely to be overcome until computer education programmes are recognised as part of current teacher

education programmes and the government provides for computer education teachers at schools.)

2.3 Recommendations Made during the Workshops

Policy and process

Where possible, the process of policy formation and integration of computer education into schools should be facilitated by the MoE. This should build on the experience of schools who already have computers at schools by establishing a network to exchange information between all schools, including those which do not yet have computers.

The great interest in ICT shown by the Ministry indicates that an ICT curriculum and its associated supports (subject committee, subject advisors and examinations) will be established fairly soon. If so, the CEP will become part of the formal school curriculum, making it sustainable.

Training

The process of establishing a viable computer education system in Swaziland depends on an adequate skill training system in the formal and tertiary sectors, with support from international organisations.

The policy for implementing teacher training should be a coherent one, including all levels of the education system, namely, tertiary institutions, teacher training institutes and INSET to existing ICT teachers.

Training will have to include discussing how teachers will have to adapt their teaching methods and the organisation of their classrooms if they acquire computers. Introducing computers into classrooms can change the dynamics of the teaching-learning situation in that teachers become facilitators of knowledge and not the sole source of information. The physical organisation of classrooms and indeed the timetable might have to be modified to suit the demands of a computer education programme.

Hardware and software

The policy on hardware and software should ensure the ease of use and sharing of resources and teacher trainers. For hardware, standards must allow various makes of computers and associated equipment to be used whereas software usage has to be

more prescriptive to allow all students to write the same examinations.

In addition, minimum standards are needed to ensure all schools have the basic infrastructure to install, run and maintain equipment.

Maintenance.

A process for maintaining and upgrading equipment is needed that ensures speedy and effective delivery.

Unsophisticated participants

Schools with computer programmes report on a range of software problems and viruses. One teacher reported that sometimes poor motor co-ordination led to difficulties with using the equipment and particularly the mouse.

Integrating computer education into the curriculum

In general, schools world wide have fairly rigid timetables and find it difficult to devote sufficient time to the computer programme. The most successful programmes are those where schools can adapt to the needs of computer education programmes in a flexible way.

Unforeseen problems

The limited provision of information technologies in Swaziland means that issues may not yet have surfaced but may soon do so. One example is copyright. It appears that at present there is no clarity on copyright law in Swaziland.

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